

Plasma Physics Junior Faculty Development Program

The Plasma Physics Junior Faculty Development Program was started in FY 1997. A principal goal of this program is to identify exceptionally talented plasma faculty members early in their careers and to assist and facilitate the development of their research programs. Eligibility for awards under this program, therefore, is restricted to tenure-track regular academic faculty investigators who are conducting experimental or theoretical plasma physics research. Proposals for research in any areas of plasma physics research, including fusion science, fall within the intent of the program. However, the emphasis in the program is on the basic plasma physics elements of the research as opposed to applications of plasma physics. Awards made under this program will help to maintain the vitality of university plasma physics research and ensure continued excellence in the teaching of plasma physics and related disciplines.

Since the beginning of the program a total of 24 awards has been made. In addition, the Office of Fusion Energy Sciences, under the NSF DOE Partnership in Basic Plasma Science and Engineering, jointly funded with the National Science Foundation an NSF Career Award made to a Junior Faculty with plasma research interests. Although most of the awards have gone to faculty at institutions with Ph.D. programs, awards have been made to faculty at undergraduate institutions.

A summary of awardees, their institution, and the title of their proposal is detailed below.

1997

1. Bruno Bauer, University of Nevada-Reno, "Stabilization and Confinement of Hot, Dense, High-Beta Plasma."
2. Michael Brown, Swarthmore College, "Fundamental Magnetofluid Physics Studies on the Swarthmore Spheromak Experiment: Reconnection and Sustainment."
3. Scott Parker, University of Colorado, "Plasma Simulation Using Gyrokinetic-Gyrofluid Hybrid Models."
4. Earl Scime, West Virginia University, "Experimental Investigation of Collisionless Electron-Electron Microinstabilities."
5. Andrew Ware, University of Montana, "Theory of Turbulent Heat and Particle Fluxes in EXB Shear Flow and Computational Modeling of the Stability of Novel Stellarators."

1998

1. Richard Fitzpatrick, University of Texas, "A Theoretical Investigation of Mode-Locking Phenomena in Reversed Field Pinches."
2. Matthew Stoneking, Lawrence University, "Toroidal Magnetic Confinement of a Pure Electron Plasma."

1999

1. George Tynan, University of California, San Diego, "Controlled Shear Decorrelation Experiment."

2. Christopher Watts, Auburn University, "Laboratory Study of Magnetic Reconnection Generated Alfvén Waves."

2000

1. Eric Blackman, University of Rochester, "New Approaches to the Dynamics and Amplification of Magnetic Fields in High Energy Plasmas of Cosmic Relevance."
2. Ambrogio Fasoli, Massachusetts Institute of Technology, "Collisionless Magnetic Reconnection and Plasma Dynamics around a Magnetic X-Point."
3. David Newman, University of Alaska, "Investigation of Self-Organized Criticality as a Paradigm for Turbulent Transport and Implications for Transport Barrier Formation and Evolution."

2001

1. Benjamin Chandran, University of Iowa, "Heat Transport in Turbulent Galaxy-Cluster Plasmas."
2. Eric Held, Utah State University, "Derivation and Implementation of Hybrid Fluid/Kinetic Model for Fusion Plasma."
3. Thomas Killian, Rice University, "Optical Studies of Strong Coupling and Recombination in Ultracold Neutral Plasmas."

2002

1. Troy Carter, University of California, Los Angeles, "Experimental Study of Interactions Between Counter-Propagating Alfvén Waves."
2. Thomas Pederson, Columbia University, "The Columbia Non-Neutral Torus."
3. Carl Sovinec, University of Wisconsin, "Numerical Studies of Magnetohydrodynamic Activity Resulting from Inductive Transients."

2003

1. Zhihong Lin, University of California, Irvine, "Kinetic Studies of Compressible Magnetohydrodynamic Turbulences in High-Beta Plasmas."
2. Dennis Whyte, University of Wisconsin, Madison, "Dynamics of Plasma Surface Interactions In-Situ Beam Analysis."
3. Gennady Shvets, University of Texas, Austin, "Interaction of High Intensity Electromagnetic Waves with Plasmas."

2004

1. Mark Gilmore, University of New Mexico, "Experimental Investigation of Active Feedback Control of Turbulent Transport in a Magnetized Plasma."
2. Nirmol Podder, Troy State University, "Experimental Study of Shock Wave Dynamics in Magnetized Plasmas."
3. Mikhail Medvedev University of Kansas, "Nonlinear Weibel Instability and Turbulence in Strong Collisionless Shocks."